Introduction: Chronic groin pain is both a topical subject and important outcome measurement following inguinal hernia repair. It has been suggested its incidence is related to the management of the nerves of the inguinal canal as well as the type of mesh used and methods of fixation for both open and laparoscopic surgery.

The level of pre-operative and post operative pain, its duration as well as complications may all be factors in predicting whether chronic pain may develop. The method of measurement of chronic pain is itself a contentious issue. It is now apparent that the measurement of activity and functional status as well as qualitative measures is important.

Uniform methods of assessing chronic post-operative pain have been proposed.

Methods: A retrospective study reviewing a consecutive series of Lichtenstein repairs performed by a single experienced hernia surgeon was carried out. 248 inguinal hernia patients operated on in 2005 were reviewed. Patients were contacted via telephone at a median of 50 months. A recently validated inguinal pain questionnaire was used to assess the incidence of chronic pain.
Results: 185 (75%) patients were able to be contacted for follow-up, making a total of 213 inguinal hernia repairs (including bilateral hernias). At the time of review 3% of patients reported having pain. No patients reported that pain or discomfort was limiting their work, exercise or activities of daily living. No patients had disabling pain.

Conclusion: Chronic pain did not appear to be a major problem within this cohort of patients. The Lichtenstein technique can produce favourable results in terms of chronic pain for unilateral, bilateral and recurrent inguinal hernias in an unselected group of patients with the usual mix of risk factors and complications.

Key words: Inguinal hernia, Lichtenstein, Local anaesthesia, Chronic pain, Bilateral inguinal hernia, Recurrent inguinal hernia

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INTRODUCTION

Inguinal hernia repairs are one of the most common surgical procedures(1). The pre-eminent status of the original Lichtenstein technique has been challenged with the introduction of other open and laparoscopic techniques, lightweight meshes and new methods of fixation with absorbable tackers and tissue glues. While there has been significant improvement in recurrence rates with most types of mesh repair(2), a variable and worrying incidence of chronic pain following open and laparoscopic repair of inguinal hernias has been documented(3).

There is still controversy regarding the true incidence of chronic pain. The lack of uniform definitions and interpretation as well as different methods of assessment has lead to this(4-6). Mild, moderate and severe pain has been reported to have a prevalence of 0.7% to 43.3%(3), with some treating the presence of pain as a dichotomous (yes/no) entity.(7) An overall prevalence of 0.5 - 6% of severe debilitating pain affecting normal daily activities and work has been reported(3). It has also been suggested that the rates of severe chronic pain are lower with laparoscopic repair, compared with Lichtenstein repair or other open techniques, as well as being associated with earlier return to work and normal activities(8). This however is associated with more adverse events during surgery(9) as well as higher rates of visceral injury(10).

Other factors such as patient profile, the level of pre-operative pain, type of hernia, post-operative pain and complications are also being assessed as to their significance in assessing the risk of the development of chronic pain(8). Many methods including numerical and behavioural rating scales have been used to assess the levels of chronic pain(11), attesting to the difficulty in assessment and interpretation. Standardization of methods of measuring results is required(7).
Franneby's(11) validated chronic inguinal pain questionnaire (IPQ) was used in this study. This was chosen because of the comprehensive but simple nature of the questionnaire. This also

incorporated pain behavior rather than numbers. The IPQ also addressed many of the issues surrounding this difficult concept, and went a great way towards providing accurate assessment. Many of the multicentre trials used in larger systematic reviews(10) that govern current guidelines(12) incorporate many different surgeons of varying levels of experience(9). To gain further insight a consecutive series of patients operated on using the Tension Free Lichtenstein Technique (TFLT) with local anaesthesia and standard mesh in 2005 by a single experienced hernia surgeon were reviewed.

The primary objective of this study was to assess the incidence of chronic pain, using a validated inguinal pain questionnaire(11). This series aims to address the issues previously raised when investigating the incidence of chronic pain(13), in particuar inadequate analysis. The Lichtenstein technique(14) was used in a consecutive series of patients with unilateral, bilateral and recurrent inguinal

DISCUSSION

The vast majority of unilateral, bilateral or recurrent hernia patients at 50 months had no significant pain or disability. None reported that their exercise, activities or work were limited by pain. Few reported the need for analgesia on any consistent basis. The incidence of moderate or significant chronic pain was less than 1%, which the authors felt would be pain that interfered with activities or required regular analgesia. In view of the high incidence of chronic pain and disability in some series(9) there have been many attempts to identify possible risk factors and surgical materials and techniques that might predict its development. This study, because of the low incidence of chronic pain was unable to identify any previously reported risk factors, despite the cohort being a consecutive series of patients.

The authors have sought to analyze and explain why these results may be different to others. The wide discrepancy in the reported incidence of chronic pain after inguinal hernia repair results needs to be explained particularly as recommendations may be based on these results(12).

It has been pointed out that aggressive early therapy for post-operative pain is indicated, since the intensity of post-operative pain correlates with the risk of developing chronic pain(15).

Pre-operative LA was used routinely as part of this regime ensuring the patient is pain free for at least 4-10 hours and is able to travel home in comfort without the need for analgesics. It was noted in this series that the vast majority of the patients did not consider early post-operative pain to be a major factor. The use of post-operative analgesics was: 14% needed no painkillers, 18% used pain killers for 1 day, and the majority for just a few days to a week. Even those who felt post-operative pain to be an issue did not develop significant chronic pain. Those patients who did complain of post-operative pain at one week were kept under review until the pain resolved.

The low incidence of significant early post-operative pain or perceived pain and the minimal need for analgesia in many patients, may be of significance. The LA may contribute to this early low level of pain and may be a significant factor, particularly as pre-emptive, peri-operative and post-operative analgesia considered under the title "multimodal analgesia" are being assessed as factors in preventing chronic pain(16).

Furthermore with LA many of the early side effects of general anaesthesia such as nausea, vomiting, and acute retention of urine are reduced. Less intensive post-operative nursing, including airway care is required. The majority of patients go home within 3 hours of surgery. The long acting LA lasts from 4-10 hours and many patients do not need further analgesia. Many patients preferred the LA because of previous problems with general anaesthesia. Many of the studies of the Lichtenstein method have not used local anaesthesia as described by Lichtenstein. This may diminish the benefits of the original repair and also account for a higher incidence of chronic pain found in some series.

The nerves

The management of the 3 major nerves of the inguinal canal has been considered to be a factor in chronic pain(17). This study showed a low incidence of chronic pain despite the IIN and IHN not

being formally identified or damaged and removed in up to 20% of cases.

Extensive studies concluded that identification and preservation of all 3 nerves of the inguinal canal reduces chronic incapacitating groin pain.

Mesh, staples

Mesh and staples have also been widely implicated as significant factors in the development of chronic pain leading to a variety of new lighter weight meshes, staples and glues(16). This series with its low incidence of significant chronic pain using a standard Polypropylene mesh and non-absorbable staples raises the question as to the role of the mesh in the development of chronic pain.

Positive Results

The positive results identified in this series may be due to the following factors;

LA infiltration allowing simpler dissection of the tissues with less trauma. Diathermy is not used, possibly reducing the inflammatory response around the nerve endings, a possible cause of nocioceptive pain. Identification and management of the nerves(12). The use of the open skin stapler to fix the mesh (appose ulc 35w auto suture). The early supervised management of post-operative pain, including contact by telephone by the surgeon with all patients the day following surgery to adjust analgesia and give support as necessary.

If the results vary so much, is it possible to attribute chronic pain to the mesh/fixation alone? The results in this study, suggest that mesh and staples may not be the main factors in determining the incidence of chronic pain, and could it just be the way the materials are used? Does it depend on the technique and the surgeon?

CONCLUSION

There is strong evidence from this series, using a validated inguinal pain questionnaire, that a Lichtenstein repair using local anaesthesia can achieve a low incidence of chronic post-operative

pain. Those few patients who did report pain, did not have any associated significant morbidity or impairment of activities of daily living. No obvious risk factors were identified as predicting or associated with chronic pain. There appeared to be no reason to alter the approach used to manage the nerves, the type of mesh or its method of fixation, in terms of chronic pain.
The validated IPQ provides a more detailed appreciation of pain behaviour. These types of pain measures will be useful in the future to help in assessing the role of surgical risk factors and techniques as a cause for chronic pain.

More detailed investigation using these validated tools is required in larger prospective studies, to provide more accurate and meaningful comparisons between other techniques in conjunction with greater operator experience.

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